[redacted] STAT

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December 2, 1965

Re: Task II, Item 6 "Evaluation Criteria" First Technical report.

Dear John:

Enclosed are two copies of the subject report. Last time I talked to [redacted] he said if the report were available now it would be very timely and I promised I would get it out. Also enclosed are two copies for Bill and Charley. STAT

Regards,

[redacted] STAT

Enclosures

[redacted] STAT

December 2, 1965

Re: Task II Item 6 "Evaluation Criteria" First Technical report

Dear Bill:

Enclosed are two copies of the report I promised I would get out for you. I would like to discuss it with you and Charley on my visit Dec. 6-10.

Regards,

[redacted] STAT

Enclosures

[redacted]

December 2, 1965 STAT

[redacted] STAT

20024

Subject: Contract [redacted] STAT

Dear Sir:

Enclosed are two copies of the first technical report on Task II, Item 6 "Evaluation Criteria."

Additional copies have been sent to the Technical Representative of the Contracting Officer.

Very truly yours,

[redacted] STAT

Enclosures

[redacted] STAT

[redacted] STAT

November 30, 1965

Task II - Item 6 First Technical Report

"Evaluation Criteria"

Work Statement:

In order for the customer to establish an in-house capability to evaluate new systems and concepts, some guidelines are desired. To this end, effort on this task will be devoted to determining specific procedures for evaluating:

a.) Information productivity of new systems and concepts.

b.) The impact on exploitation methods for extracting the information productivity of new systems and concepts.

This first technical report on item 6 explores the task group approach to the review of new systems and new concepts.

Submitted by:

[redacted] STAT

Task II - Item 6 First Technical Report

Evaluation Criteria

1. Summary

New collection systems and techniques have an impact on exploitation procedures which must be established early in the development cycle. Joint consideration of the interaction of collection problems and exploitation problems is essential. In this report a temporary duty task group guided by a permanent one or two man staff for continuity is suggested for the evaluation procedure. It is proposed that the permanent staff select the system or concept for evaluation and select a two or three man task group core for temporary duty assignment to the evaluation task. The task group core would be responsible for defining the problem, selecting additional members for temporary duty assignment, and establishing an ad hoc task group to evaluate the particular problem. It is desirable that both the task group core and task group members be on full time assignment for the temporary duty term of the task group activity.

Task group output must be specific and sufficiently detailed to permit immediate action by operating groups. Future reports on this item will consider further the techniques of assessing information productivity and its impact on exploitation.

2. Problem Statement

New photo collection techniques are continually under consideration for gathering improved intelligence data and new systems are continually in development.

A procedural mechanism is needed to assess the impact of new photo collection systems on photo exploitation activity. Since the lead time for development of new exploitation equipment is equally as long as that for collection equipment, it is imperative that exploitation needs be established early in the development cycle.

A two-way traffic of information is necessary and concurrent interlaced evaluation of both collection and exploitation equipment will yield an improvement in overall productivity and reliability.

It is axiomatic that where choice is possible, it pays handsome dividends to keep the complexity on the ground. To reap the dividends, however, the above mentioned integrated consideration of collection and exploitation is essential.

Intensive in-depth study is required to achieve true overall improvements as contrasted with an improvement in efficiency of one segment of the data flow. It has been generally true that improvements in data collection have been instituted without concurrent and equal improvements in data exploitation and an important segment of improved efficiency has thereby been lost.

Many diverse skills and experience backgrounds are necessary for adequate evaluation of new systems and new concepts. Impact on operating groups and their equipments requires extensive knowledge of the operating groups' capabilities, work load, and procedures.

3. Task Group Concept

There are two general organizational approaches to assessing the impact of new systems:

a.) Establish a permanent staff group which will contain all the necessary skills and manpower to examine concepts as they appear.

b.) Establish a temporary task group which will collect the necessary skills and manpower to be devoted for a short period to assessing the impact of one specific system or concept.

It is, I believe, self evident that a permanent staff group would need to be large with a wide diversity of skills and would probably have an inefficient peak and valley work load situation.

On the other hand, a temporary task group lacks continuity, cannot keep permanent files or follow up on recommendations, and cannot integrate the impact of a long series of separate assessments. In addition, it is always difficult to get temporary members to spend adequate time on an additional assignment while carrying on regular duties. It appears that a combination of the two approaches would be the most promising solution: Establishment of a small permanent staff of one or two men with permanent offices and files to be augmented by a temporary ad hoc task group which would bring the necessary skills to a particular assessment.

4. Factors to be Considered

The following is a random sampling of the factors that a good evaluation must consider. It demonstrates the wide range of skills and depth of experience needed.

a.) Effect on the skill level of the various labor categories in exploitation activity.

b.) Work load effect on existing personnel complement of the various labor categories in exploitation activity.

c.) Effect on range of accommodation of existing exploitation equipment.

d.) Demands on quality level of existing exploitation equipment.

e.) Demands on production rate of existing exploitation equipment.

f.) Recording and presentation of geographical coordinates and time and date records and the effect on interpreter orientation.

g.) Frame number and other data recording and the effect on reference filing and cross indexing.

h.) Fiducial type and location and the effect on mensuration and carthography.

i.) Scale and image quality expected and the effect on magnification and optical quality of viewers.

j.) Density range and contrast rendition and the effect on viewer illumination and dodging requirements.

k.) Image orientation and coverage and the effect on film handling and stereo viewing.

l.) Film width, footage and information density and its enormous effect on material handling and manpower requirements.

m.) Ground coverage sequencing and the effect on printing, viewer film handling and stereo considerations.

n.) Effect on maintenance and training procedures and effect on correlative data requirements.

o.) Exploitation requirements for and the effect on collection system data block recording.

p.) Effect of new systems on material flow paths and time schedule budgets from collection vehicle, through printing and processing to interpretation, mensuration, feedback analysis and reporting.

q.) Effect of exploitation on the collection system cycling rate, scale, coverage, image orientation, fiducials, geographical coordinates and time of day determination.

r.) Effect of exploitation computer programming on collection system image geometry and stabilization requirements.

5. Organization

5.1 The small permanent staff of one or two men would be responsible for:

a.) Selection of systems and concepts for consideration and a priority listing for the order of activity.

b.) Selection of the task group core personnel.

c.) Maintenance of records, preparation of reports and dissemination of recommendations for action.

d.) Follow up on action and reconvening task group core from time to time (perhaps quarterly) to review progress and to determine whether additional full task group study is needed.

5.2 A task group core of one to three men would provide the leadership of the task group and the impetus to get the job completed and done well. The core would be responsible for:

a.) Problem definition

b.) Determination of skills needed

c.) Selection of task members

d.) Scheduling task activity

e.) Substantial technical contribution to the investigation

f.) Final editing of findings and recommendations

g.) Reconvening periodically to review progress on recommended action

h.) Recommending reconvening the task group for further evaluation if conditions warrant.

5.3 The task group in general should be composed of the following types:

a.) Collection system contractor technical man intimately familiar with the technical details of the new collection system or concept.

b.) An analytical man skilled in computer programming and experienced in mensuration coordinate transformation and other computation requirements.

c.) A man skilled in image quality determination, mission coverage analysis and experienced in feeding back performance data to collection system organizations.

d.) A photo interpreter skilled in extracting photo data, familiar with the interpreters problem of geographical orientation and skilled in preparation of analysis reports.

e.) A man experienced in the work flow, material storage, records and ancillary data requirements of the exploitation operation.

f.) A man experienced in collection system mission planning and operations and in the material flow paths to the exploitation operation.

g.) A man skilled in the printing, processing and film handling operation.

5.4 Operation of the task group should be informal and urgent completion deadlines established. A task group should have not more than five members and be active for not more than one month. It would be most advantageous if each member provided more than one required skill. If not, the task group would simply have to be enlarged at certain times during its span of activity.

6. Conclusion

6.1 Assignments

Only the one or two technical staff members need to be permanently assigned to the "Evaluation Criteria" program.

The task group core and task group members would be on temporary assignment to a particular task group for a particular evaluation. It is important, however, that the temporary assignments be on a full-time basis for the short term of the task group activity.

Participation by operating group personnel in a task group ad hoc evaluation cannot help but broaden their outlook and produce long term benefits to the operating group.

6.2 Task Group Output

For a task group to produce a report which will be filed and forgotten would be a complete waste of everyone's time. Action on the part of the technical staff and the operating groups must result in order for the task group approach to be effective.

Task group recommendations for:

a.) New equipments

b.) Rework of present equipments

c.) Change in work procedure

d.) Change in organization

are necessary but insufficient. Task group output must be much more detailed and specific and must go well into the implementation phase:

a.) For recommended new equipments, the task group should prepare pre-contract-definition-phase development objectives.

b.) For recommended rework of present equipments, the task group should prepare design objectives.

c.) For recommended changes in work procedures the task group should propose specific changes in operation manuals.

d.) For recommended changes in organization, the task group should propose specific changes in organization charts.

A task group must product completed staff work in order to yield true improvement in overall productivity and reliability.

6.3 Future reports will consider further the techniques of assessing information productivity and the impact on exploitation.

STAT